



Sun Fire™ X4100/X4100 M2 and X4200/X4200 M2 Servers Installation Guide

Sun Microsystems, Inc.
www.sun.com

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Preface

This *Installation Guide* contains procedures for installing the server in a rack, cabling, and powering on the server. It also contains procedures for connecting to the service processor administrator account. Links to documentation for configuring the preinstalled Solaris 10 software or for installing other supported operating systems are also included.

Related Documentation

For a description of the document set, see the *Where To Find Documentation* sheet that is packed with your system and available at the product's documentation site. Refer to the following URL, then navigate to your product:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/index.html

This site also contains translated versions of some of these documents in French, Simplified Chinese, Traditional Chinese, Korean, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

For all Sun documentation, refer to:

<http://www.sun.com/documentation>

For Solaris and other software documentation, refer to:

<http://docs.sun.com>

Product Updates

For product updates that you can download for the Sun Fire X4100 or X4200 servers, please visit the following Web site:

<http://www.sun.com/servers/entry/x4100/downloads.jsp>

This site contains updates for firmware and drivers, as well as CD-ROM .iso images.

Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

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Typographic Conventions

Typeface*	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code>
AaBbCc123	What you type, when contrasted with on-screen computer output	<code>% su</code> <code>password:</code>
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

* The settings on your browser might differ from these settings.

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Setting Up the Server Hardware

This chapter contains the following topics:

- [“Installation Overview” on page 1](#)
- [“Installing the Server Into a Rack With Optional Slide Rails” on page 2](#)
- [“Cabling” on page 13](#)
- [“Powering On and Off the Server” on page 16](#)

Note – The information in this book applies to all Sun Fire™ X4100/X4100 M2 and X4200/X4200 M2 servers, unless otherwise noted.

Installation Overview

After unpacking your server, perform the following tasks, which are described in the documentation as indicated:

1. If desired, install the server into a rack using orderable slide-rails. See [“Installing the Server Into a Rack With Optional Slide Rails” on page 2](#).
2. Connect all cables, peripherals, and power cords. See [“Cabling” on page 13](#) for an illustration of the server’s back panel connector ports.
3. Power on and boot the server as described in [“Powering On and Off the Server” on page 16](#).
4. Connect to the service processor as described in [Chapter 2](#).

5. Configure the preinstalled Solaris™ operating system or install a supported operating system of your choice. For details, refer to one of the following:
 - “Configuring the Preinstalled Solaris 10 Operating System” on page 36
 - *Sun Fire X4100/X4100 M2 and X4200/X4200 M2 Servers Operating System Installation Guide*, 819-1158
 - *Sun Fire X4100/X4100 M2 and X4200/X4200 M2 Servers Windows Operating System Installation Guide*, 819-4346
6. Customize your server as needed. For details, refer to the “System Management” section of the online information system or the *Integrated Lights-Out Manager Administration Guide*, 820-0280-10.

Installing the Server Into a Rack With Optional Slide Rails

To install your server in a four-post rack using the orderable slide-rail option, follow these procedures. These slide-rails are compatible with a wide range of equipment racks that meet the following standards:

- Four-post structure (mounting at both front and rear). Two-post racks are not compatible.
- Rack horizontal opening and unit vertical pitch conforming to ANSI/EIA 310-D-1992 or IEC 60927 standards.
- Distance between front and rear mounting planes between 610 mm and 915 mm (24 inches to 36 inches).
- Clearance depth (to front cabinet door) in front of front rack mounting plane at least 25.4 mm (1 inch).
- Clearance depth (to rear cabinet door) behind front rack mounting plane at least 800 mm (31.5 inches) or 700 mm (27.5 inches) without cable management arm.
- Clearance width (between structural supports and cable troughs) between front and rear mounting planes at least 456 mm (18 inches).

Note – Although the Sun Fire X4100/X4100 M2 server is pictured in the illustrations in this section, these procedures also apply to the Sun Fire X4200/X4200 M2 server.



Caution – Always load equipment into a rack from the bottom up so that it will not become top-heavy and tip over. Deploy your rack’s anti-tilt bar to prevent the rack from tipping during equipment installation.

Disassembling the Slide Rails Before Installation

Use this procedure to remove the mounting brackets from the slide-rail assemblies.

1. **Unpack the slide-rails.**
2. **Locate the slide-rail lock at the front of one of the slide-rail assemblies, as shown in [FIGURE 1-1](#).**
3. **Squeeze and hold the tabs at the top and bottom of the lock while you pull the mounting bracket out of the slide-rail assembly, until it reaches the stop. See [FIGURE 1-1](#).**
4. **Pull the mounting bracket release button toward the front of the mounting bracket, as shown in [FIGURE 1-1](#), and simultaneously withdraw the mounting bracket from the slide-rail assembly.**
5. **Repeat the procedure for the remaining slide rail assembly.**

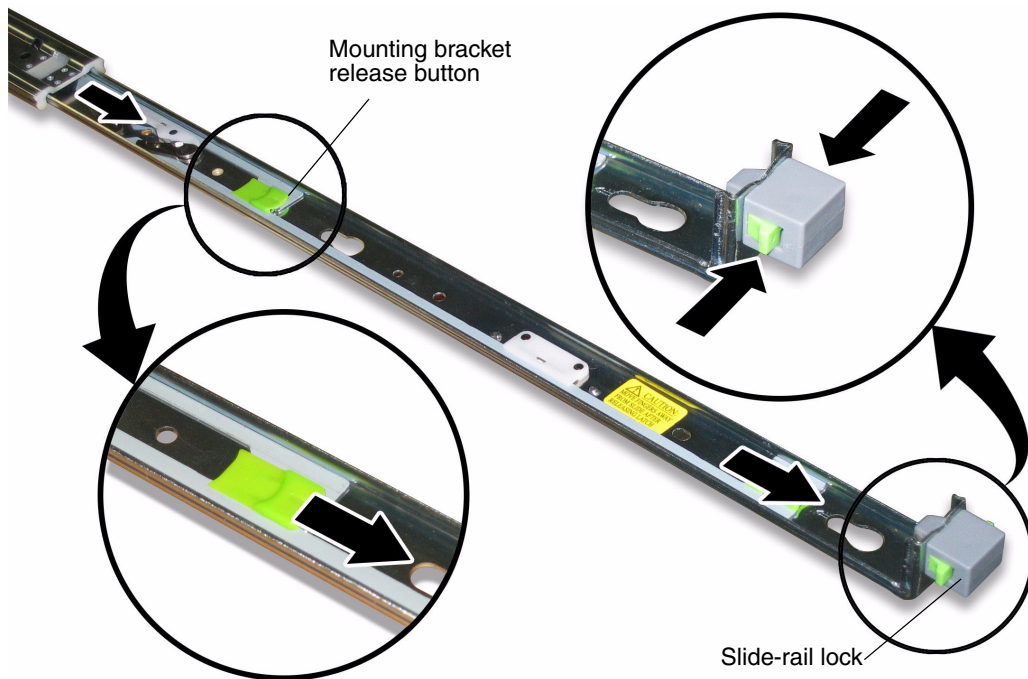


FIGURE 1-1 Disassembling the Slide-Rail Before Installation

Installing the Mounting Brackets Onto the Server

Use this procedure to install the mounting brackets onto the sides of the server.

1. Position a mounting bracket against the chassis so that the slide-rail lock is at the server front, and the three keyed openings on the mounting bracket are aligned with the three locating pins on the side of the chassis. See [FIGURE 1-2](#).

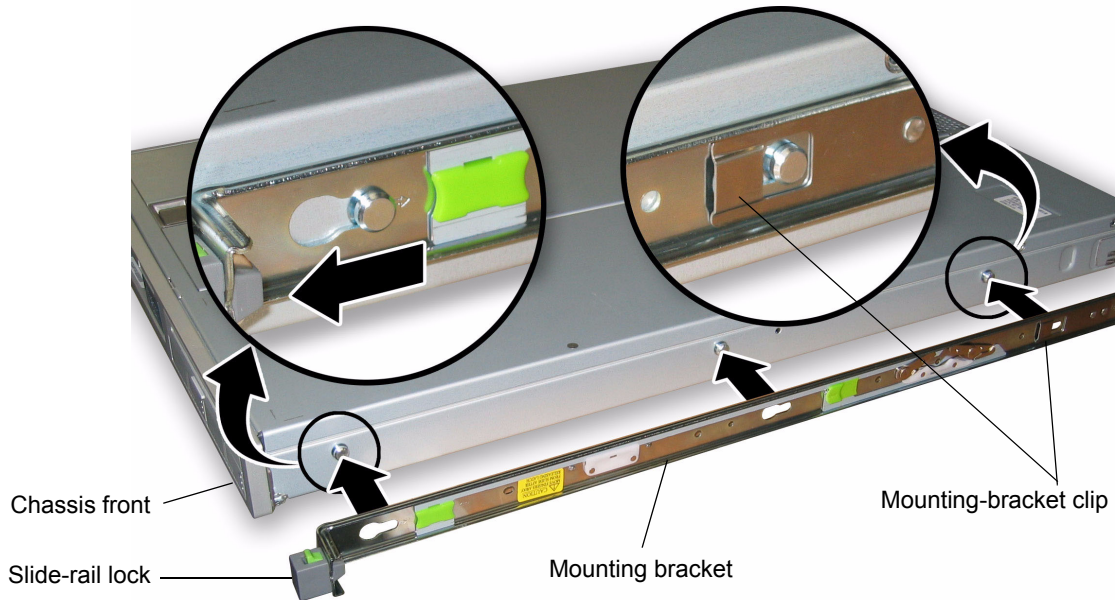


FIGURE 1-2 Aligning the Mounting Bracket With the Server Chassis

2. With the heads of the three chassis locating pins protruding through the three keyed openings in the mounting bracket, pull the mounting bracket toward the front of the chassis until the mounting-bracket clip locks into place with an audible click. See [FIGURE 1-2](#).
3. Verify that all three locating pins are trapped in the keyed openings and that the rear locating pin has engaged the mounting-bracket clip. See [FIGURE 1-2](#).
4. Repeat the procedure to install the remaining mounting bracket on the other side of the server.

Attaching the Slide-Rail Assemblies to the Rack

Use this procedure to install the slide-rail assemblies to the rack.

1. **Position a slide-rail assembly in your rack so that the brackets at each end of the slide-rail assembly are on the outside of the front and rear rack posts.** See [FIGURE 1-3](#).
2. **Attach the slide-rail assembly to the rack posts.**

The method used to attach the slide-rails varies depending on the type of rack:

- If your rack has threaded mounting holes in the rack posts, first determine whether the threads are metric or standard, then insert the correct mounting screws through the slide-rail brackets and into the threaded holes.
- If your rack does not have threaded mounting holes, insert the mounting screws through both the slide-rail brackets and rack posts, then secure them with the caged nuts.



FIGURE 1-3 Slide-Rail Assembly Mounting to Rack Post

3. **Repeat the procedure for the remaining slide rail assembly.**

Installing the Server Into the Slide Rail Assemblies

Use this procedure to install the server chassis, with mounting brackets, into the slide-rail assemblies that are mounted to the rack.



Caution – This procedure requires a minimum of two people because of the weight of the server. Attempting this procedure alone could result in equipment damage or personal injury.

1. Push the slide-rails into the slide-rail assemblies as far as possible.
2. Raise the server so that the rear ends of the mounting brackets are aligned with the slide-rail assemblies that are mounted in the equipment rack. See [FIGURE 1-4](#).
3. Insert the mounting brackets into the slide-rails, then push the server into the rack until the mounting brackets encounter the slide-rail stops (approximately 12 inches or 30 cm).

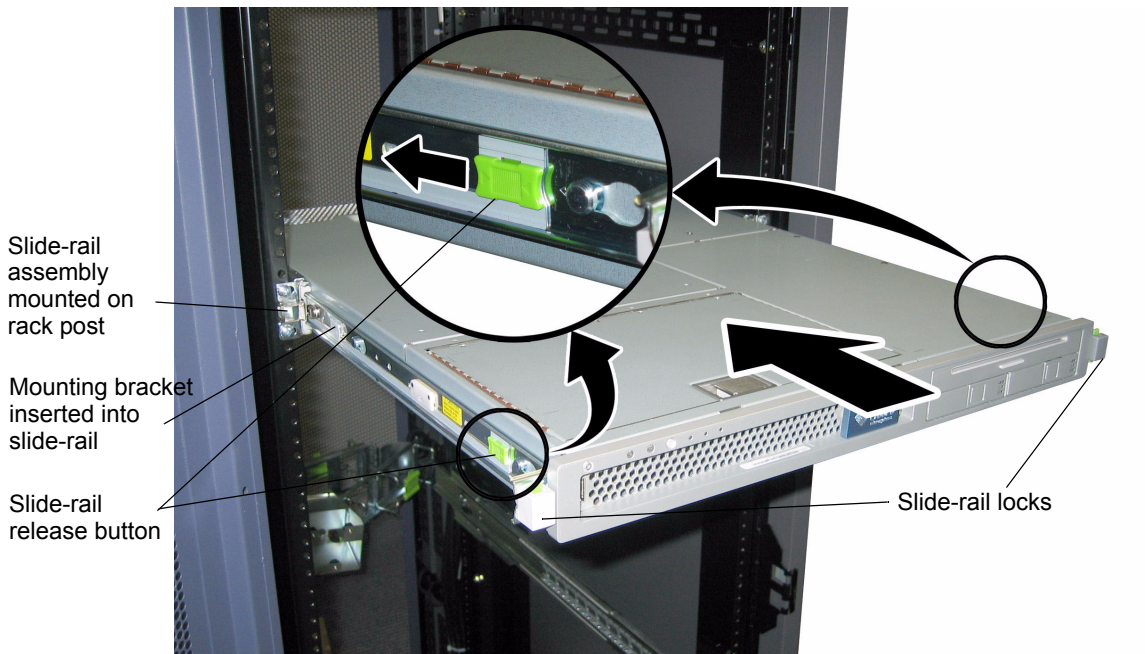


FIGURE 1-4 Inserting the Server With Mounting Brackets Into the Slide-Rails

4. Simultaneously pull and hold the slide rail release buttons on each mounting bracket while you push the server into the rack. See [FIGURE 1-4](#).

Continue pushing until the slide-rail locks on the front of the mounting brackets engage the slide-rail assemblies.



Caution – Verify that the server is securely mounted in the rack and that the slide-rails locks are engaged with the mounting brackets before continuing.

Installing the Cable Management Assembly

Use this procedure to install an optional cable management assembly (CMA).

1. Unpack the CMA parts.
2. Take the CMA to the rear of the equipment rack and ensure that you have adequate room to work around the rear of the server.

Note – References to “left” or “right” in this procedure assume that you are facing the rear of the equipment rack.

3. Locate the CMA rail extension and insert it into the left slide-rail until the extension locks into place with an audible click. See [FIGURE 1-5](#).

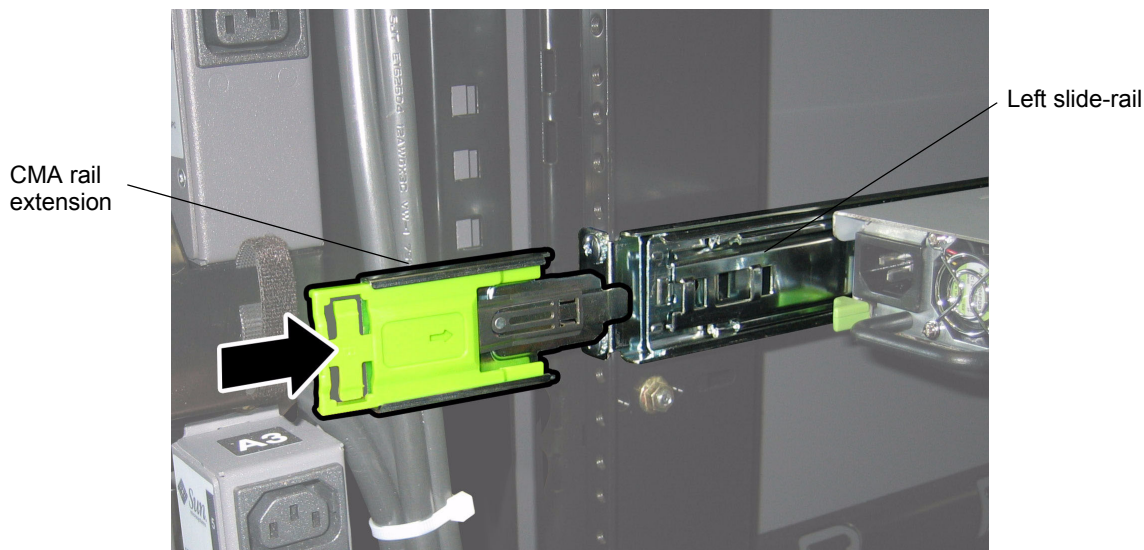


FIGURE 1-5 Inserting the CMA Rail Extension Into the Rear of the Left Slide-Rail

4. Verify that the CMA rail extension engages the slide-rail, as shown in [FIGURE 1-6](#).

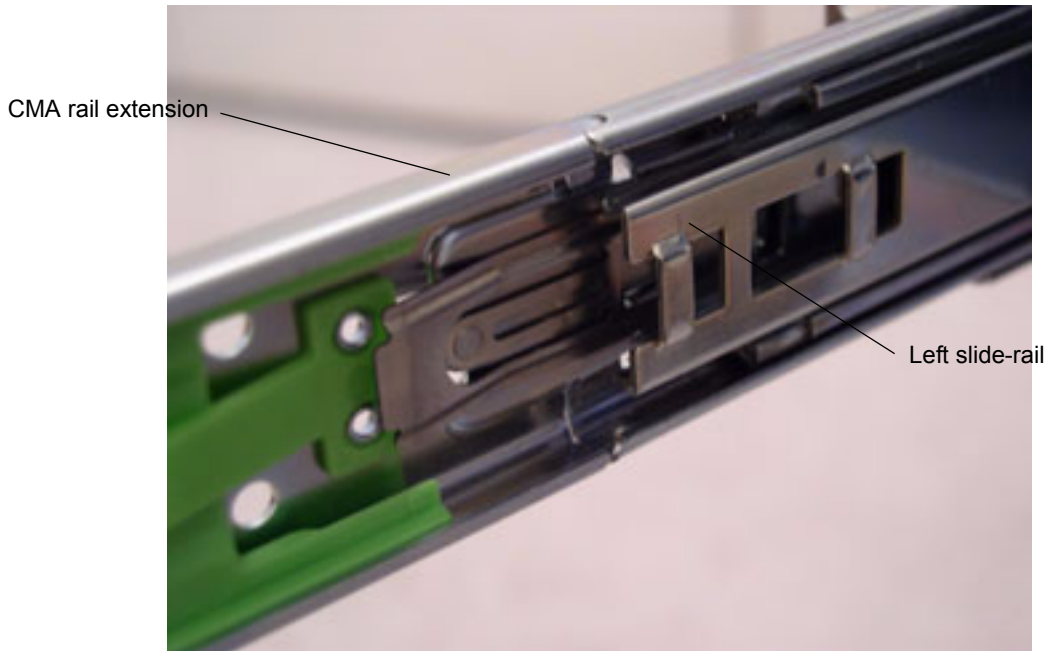


FIGURE 1-6 Detail of CMA Rail Extension Inserted Into the Left Slide-Rail

Note – Support the CMA in the remaining installation steps. Do not allow the assembly to hang by its own weight until it is secured by all three of the attachment points.

5. Insert the CMA's mounting bracket connector into the right slide-rail until the connector locks into place with an audible click. See [FIGURE 1-7](#).

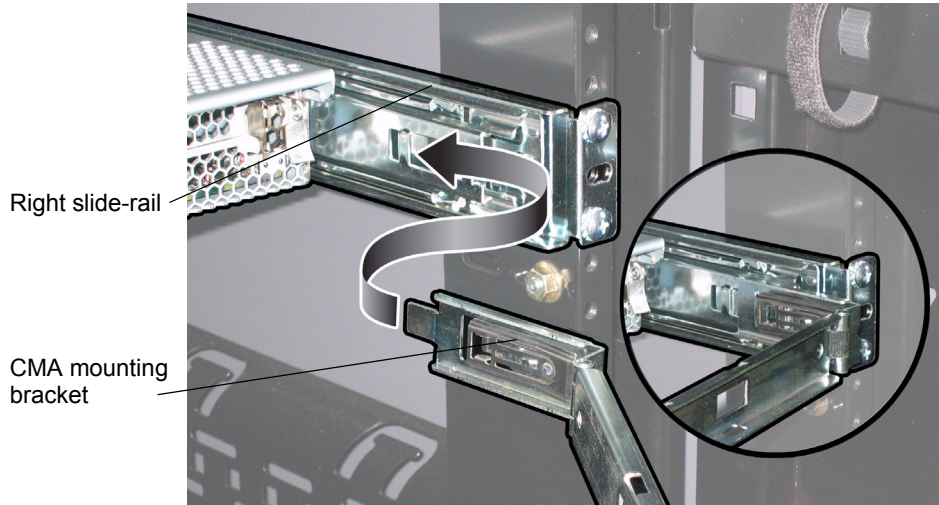


FIGURE 1-7 Inserting the CMA Mounting Bracket Into the Rear of the Right Slide-Rail

6. Insert the right CMA slide-rail connector into the right slide-rail assembly until the connector locks into place with an audible click. See [FIGURE 1-8](#).

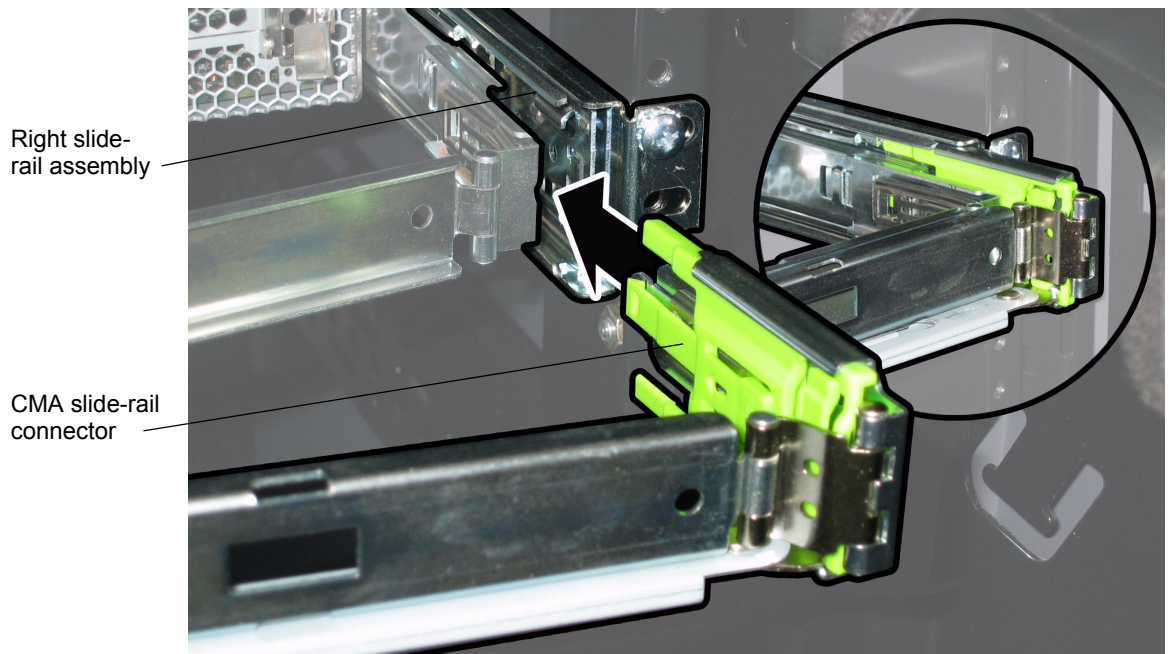


FIGURE 1-8 Inserting CMA Slide-Rail Connector Into Rear of Right Slide-Rail Assembly

7. Insert the remaining CMA arm connector into the plastic cutout on the CMA rail extension, which you installed to the left slide-rail in [Step 3](#). See [FIGURE 1-9](#).

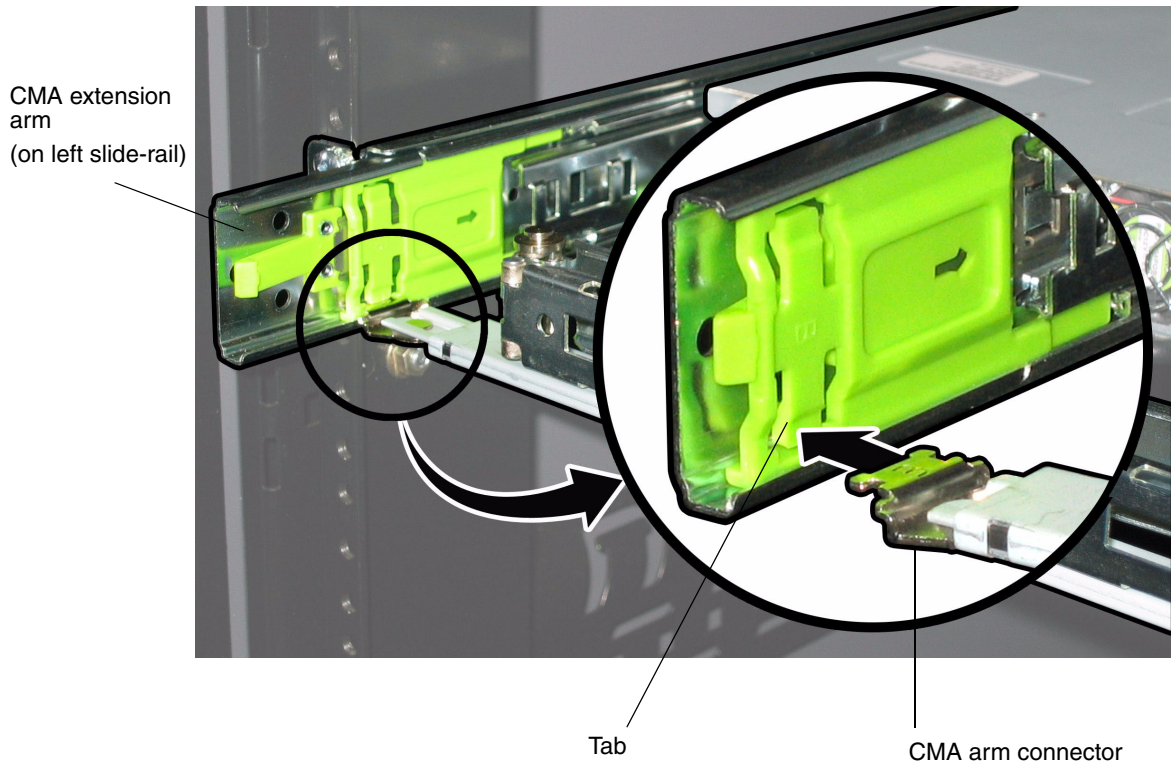
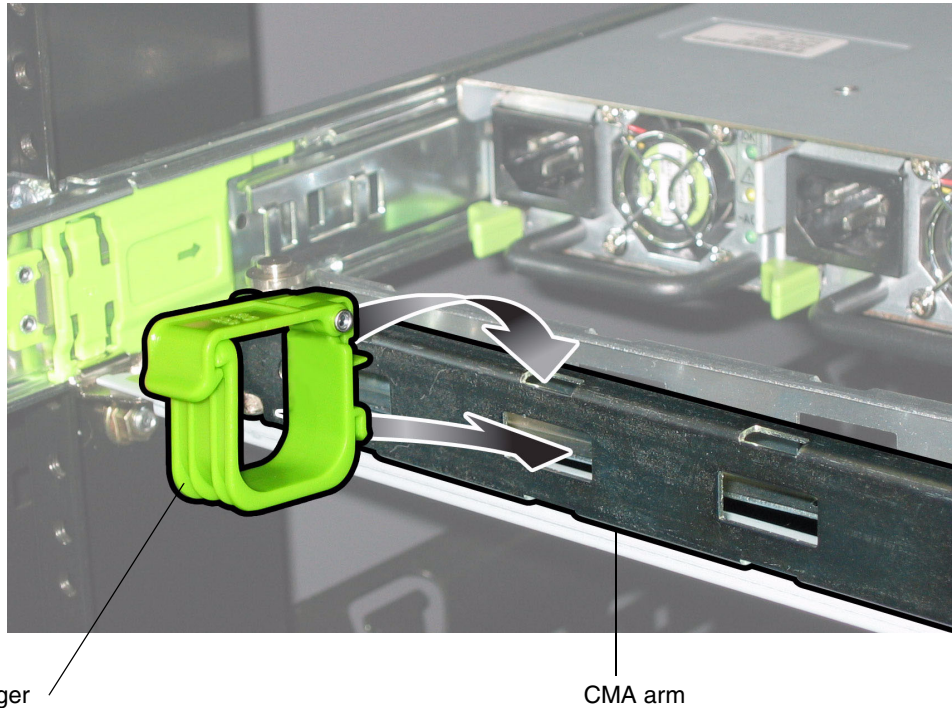


FIGURE 1-9 Connecting the CMA Arm to Rail Extension Connector

8. Gently press the tab in the direction indicated in [FIGURE 1-9](#) to open the cutout enough to insert the connector.

Once you pass the connector through the cutout, release the tab to lock the connector in place.

9. Position the cable hangers in the appropriate mounting holes in the CMA and snap them into place. See [FIGURE 1-10](#).



CMA cable hanger

CMA arm

FIGURE 1-10 Installing CMA Cable Hangers

Attaching and Routing Cables

Use this procedure to attach cables to your server and route them through the CMA.

1. Refer to [“Cabling” on page 13](#) for an illustration of the server back panel ports and a procedure for installing cables to your server.
2. Install cables to your server, as required.
3. Route the cables through the CMA cable hangers.

Verifying Operation of the Slide Rails and CMA

Use this procedure to ensure that the slide-rails and CMA are operating correctly.

Note – Two people are recommended for this procedure: one to move the server in and out of the rack and one to observe the cables and CMA.

1. Slowly pull the server out of the rack until the slide-rails reach their stops.
2. Inspect the attached cables for any binding or kinks.
3. Verify that the CMA extends fully and does not bind in the slide-rails.
4. Push the server back into the rack, as described below.

When the server is fully extended, you must release two sets of slide-rail stops to return the server to the rack:

- a. The first set of stops are levers, located on the inside of each slide-rail, just behind the rear panel of the server. These levers are labeled "PUSH." Push in both levers simultaneously and slide the server toward the rack.

The server will travel approximately 15 inches (38 cm) and stop.

Verify that the cables and the CMA retract without binding before continuing.

- b. The second set of stops are the slide-rail release buttons, located near the front of each mounting bracket. See [FIGURE 1-4](#). Simultaneously push or pull both of the slide-rail release buttons and push the server completely into the rack until both slide-rail locks engage.
5. Adjust the cable hangers and CMA as required.
 6. Continue with "[Cabling](#)" on page 13.

Cabling

Attach cables to the back panel connectors of your server as required. See [FIGURE 1-11](#) or [FIGURE 1-12](#).

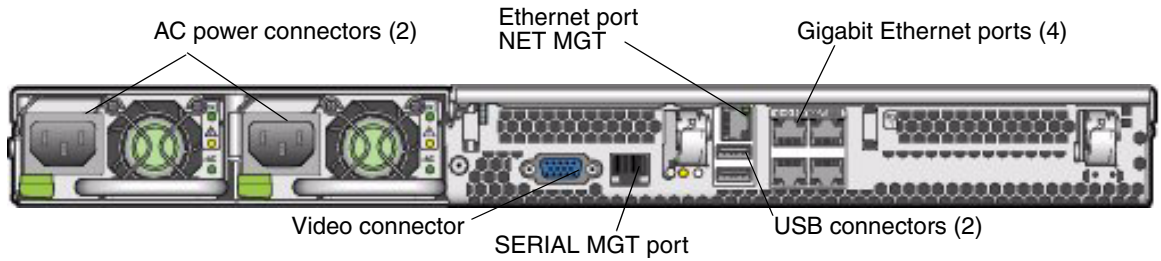


FIGURE 1-11 Sun Fire X4100/X4100 M2 Server Back Panel

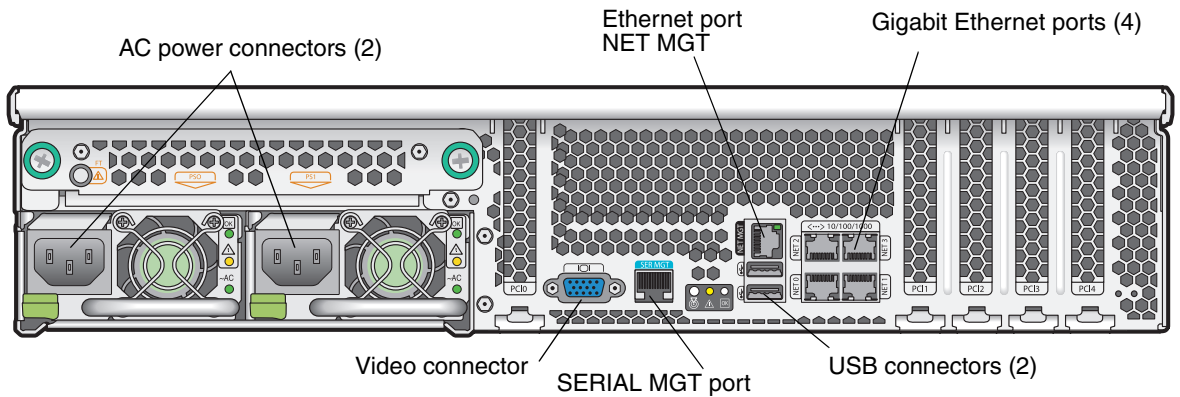


FIGURE 1-12 Sun Fire X4200/X4200 M2 Server Back Panel

1. If desired, connect a USB keyboard cable to a USB connector.
2. If desired, connect a USB mouse cable to a USB connector.

3. If desired, connect a video monitor cable to the video connector.

Note – Keyboard, mouse, and video are optional with an operating system that supports headless operation.

Note – The system console supports only a screen resolution of 1024 by 768 and a color depth of 24 bits. This limitation is necessary to support video redirection by the Integrated Lights Out Manager (ILOM).

4. Connect Ethernet cables to the “NET” connectors as required for your Gigabit Ethernet or management network.

Note the following guidelines regarding the Ethernet (LAN) ports:

- The port labeled “NET MGT” is a 10/100 Ethernet port that can connect your system to a management network.
- The ports labeled “NET 0” through “NET 3” are Gigabit Ethernet ports.

The order in which the BIOS detects the Ethernet ports during bootup and the corresponding drivers that control those ports are listed below.

- **Sun Fire X4100/X4200 servers:**

- i. NET 0 (Intel NIC 0)
- ii. NET 1 (Intel NIC 1)
- iii. NET 2 (Intel NIC 2)
- iv. NET 3 (Intel NIC 3)

- **Sun Fire X4100 M2/X4200 M2 servers:**

- i. NET 0 (Nvidia CK8-04 NIC)
- ii. NET 1 (Nvidia IO-04 NIC)
- iii. NET 2 (Intel NIC)
- iv. NET 3 (Intel NIC)

See [“Connecting to the ILOM Service Processor” on page 21](#) for additional information about setting up the service processor for remote system management.

5. If desired, connect an RJ-45 serial port cable to the “SERIAL MGT” connector.

Note the following considerations for the serial port and serial port cabling:

- The default serial port speed is 9600 baud with no flow control.
- These servers use the same pinout as the RJ45 port on the RSC/ALOM/ALOM Plus cards on Sun Netra™ and other Sun Fire systems.
- There is a compatible Sun RJ45-to-DB9 adapter shipped with the server, part number 530-3100.
- An alternative, compatible cable is the Cisco 72-3383-01 console cable.

6. Continue with [“Powering On and Off the Server”](#) on page 16.

Powering On and Off the Server

You have to apply only standby power to the server at this point so that you can perform initial configuration of the service processor. Procedures for powering on to main power mode and for shutting down from main power mode are also included in this section.

Applying Standby Power for Initial Service Processor Configuration

Use this procedure to apply standby power to the service processor (SP) before initial configuration.



Caution – Do not operate the server without all fans, component heatsinks, air baffles, and the cover installed. Severe damage to server components can occur if operated without adequate cooling mechanisms.

1. **Connect grounded AC power cords to the AC power connectors on the back panel of the server and to grounded AC power outlets.**

In standby power mode, the Power/OK LED on the front panel flashes, indicating that the SP is working. See [FIGURE 1-13](#) or [FIGURE 1-14](#) for the LED location.

Note – At this point, standby power is supplied only to the Graphics Redirect and Service Processor (GRASP) board and power supply fans. You can proceed to [Chapter 2](#) to begin initial configuration. Do not apply main power to the rest of the server until you are ready to install a platform operating system.

2. **Continue with initial software setup tasks, as described in [Chapter 2](#).**

Powering On Main Power Mode

- To power on main power for all server components:
 - a. Verify that power cords have been connected and that standby power is on.
In standby power mode, the Power/OK LED on the front panel flashes. See [FIGURE 1-13](#) or [FIGURE 1-14](#).
 - b. Use a ballpoint pen or other stylus to press and release the recessed Power button on the server front panel.
When main power is applied to the full server, the Power/OK LED next to the Power button lights and remains lit.



FIGURE 1-13 Sun Fire X4100/X4100 M2 Server Front Panel

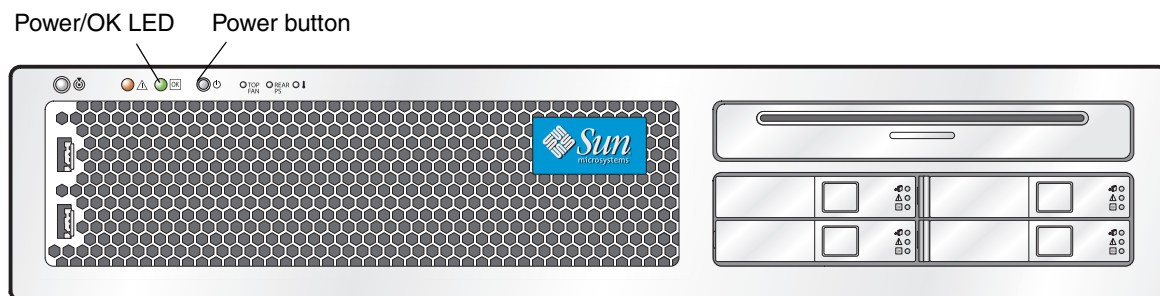


FIGURE 1-14 Sun Fire X4200/X4200 M2 Server Front Panel

Shutting Down Main Power Mode

- To power off the server from main power mode, use one of the following two methods:
 - **Graceful shutdown:** Use a ballpoint pen or other stylus to press and release the Power button on the front panel. This causes Advanced Configuration and Power Interface (ACPI) enabled operating systems to perform an orderly shutdown of the operating system. Servers not running ACPI-enabled operating systems will shut down to standby power mode immediately.

- **Emergency shutdown:** Press and hold the Power button for four seconds to force main power off and enter standby power mode.

When main power is off, the Power/OK LED on the front panel will begin flashing, indicating that the server is in standby power mode.



Caution – To completely power off the server, you must disconnect the AC power cords from the back panel of the server.

Setting Up the Server Software

This chapter describes the tasks for initial setup of the server's service processor and Integrated Lights Out Manager™ software. This chapter contains these topics:

- [“Introduction to the Integrated Lights Out Manager” on page 19](#)
- [“Connecting to the ILOM Service Processor” on page 21](#)
- [“Setting Up Platform Operating System and Driver Software” on page 29](#)

Introduction to the Integrated Lights Out Manager

The Integrated Lights Out Manager (ILOM) provides powerful tools for managing your server.

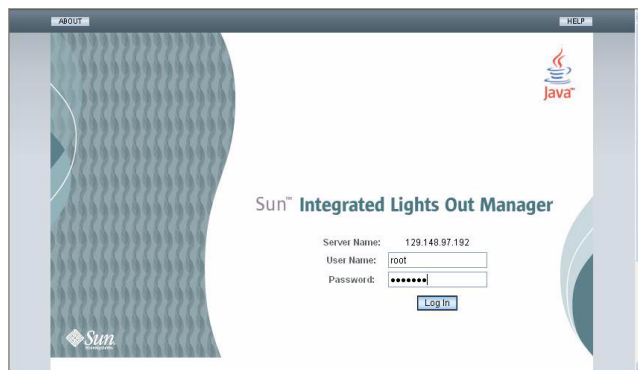


FIGURE 2-1 Integrated Lights Out Manager Login Page

ILOM consists of four components, three of which are on your host server and one that is on the client system that accesses your host server. The four components are as follows:

- **ILOM SP hardware.** Your server is equipped with a Graphics Redirect and Service Processor (GRASP) board that performs the following functions:
 - Monitors the status and configuration of field-replaceable components of your server, such as fans, disk drives, and power supplies.
 - Provides serial and Ethernet connections to external terminals or local area networks (LANs).
- **ILOM SP firmware.** Preinstalled on the GRASP board is a library of system management firmware applications. This ILOM firmware is operating system independent. These firmware applications provide the following system management interfaces into your server:
 - A web-based graphical interface
 - A Secure Shell (SSH) command-line interface
 - An IPMI v2.0 command interface
 - A Simple Network Management Protocol (SNMP) v1, v2c, or v3 interfaceThese interfaces call the same underlying system management functions on your GRASP board, so you can choose to work with one or more of these ILOM interfaces to integrate with the other management interfaces running in your data center.
- **Remote Console application.** The Remote Console application allows remote clients to view the graphical console of your host server as though they were directly attached to its video connector. The Remote Console is a mirror of the 1024x768 output from the server's VGA video connector. The remote keyboard, mouse, CD drive, or diskette drive will appear as standard USB devices.

Note – The Remote Console application is not required on the client systems, but a web browser and Sun Java™ runtime environment version 5.0 or later are required on the client systems. You can download Java free from <http://java.sun.com>.

- **Client-side Secure Shell application.** To access the ILOM SP through a remote Secure Shell (SSH), you must install a Secure Shell communications application on the remote client system (server, workstation, or laptop). Many Secure Shell communications applications are available from commercial or open-source distribution. Refer to <http://www.openssh.org> for information about open-source client-side SSH applications.

Sun Microsystems™ has configured the ILOM hardware and firmware on your server to reflect the most common default settings used in the field. It is unlikely that you will need to change these defaults.

Connecting to the ILOM Service Processor

There are two methods for connecting to the ILOM SP to perform initial setup and configuration. Use the procedure that you prefer:

- [“Connecting to ILOM Using a Serial Connection” on page 21](#)
- [“Connecting to ILOM Using an Ethernet Connection” on page 23](#)

Connecting to ILOM Using a Serial Connection

Use this procedure to establish a serial connection to the ILOM SP so that you can perform initial configuration of ILOM.

Note – This procedure assumes that you have already completed the hardware setup and have applied standby power to your server, as described in [Chapter 1](#).

1. **Verify that your terminal, laptop, or terminal server is operational.**
2. **Configure that terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
 - 8N1: eight data bits, no parity, one stop bit
 - 9600 baud
 - Disable hardware flow control (CTS/RTS)
 - Disable software flow control (XON/XOFF)
3. **Connect a serial cable from the RJ-45 SERIAL MGT port on the server’s back panel to a terminal device.** See [FIGURE 1-11](#) or [FIGURE 1-12](#) for the location of this port.

4. **Press Enter on the terminal device to establish a connection between that terminal device and the ILOM SP.**

The SP eventually displays a login prompt, such as the following example:

```
SUNSP0003BA84D777 login:
```

In this example login prompt:

- The string SUNSP is the same for all SPs.
- 0003BA84D777 is the Ethernet MAC address of the particular SP. This will be different for each server.

5. **Log in to the ILOM.**

a. **Type the default user name: root**

b. **Type the default password: changeme.**

Once you have successfully logged in, the SP displays its default command prompt:

```
->
```

You can now run CLI commands to configure ILOM for the server's user accounts, network settings, access lists, alerts, and so on. For detailed instructions on CLI commands, see the *Integrated Lights-Out Manager Administration Guide*, 819-1160.

For instructions on configuring static network settings using the CLI, see [“Configuring Static IP Addresses Using the CLI”](#) on page 27.

6. **To start the serial console, you can type:**

```
cd /SP/console
```

```
start
```

Note – You can switch back to the SP CLI from the serial console by entering the **Esc** (key sequence.

7. **After configuring the server, continue with [“Setting Up Platform Operating System and Driver Software”](#) on page 29.**

Connecting to ILOM Using an Ethernet Connection

To access the full range of ILOM functionality such as the graphical user interface (GUI), you must connect a LAN to the Ethernet port and configure your Ethernet connection.

ILOM supports Dynamic Host Configuration Protocol (DHCP) and static IP addressing.

- To configure using DHCP, see [“Configuring ILOM Ethernet Settings Using DHCP” on page 23](#).
- To configure using a static IP address, see [“Configuring ILOM Using Static Ethernet Settings” on page 26](#).

Configuring ILOM Ethernet Settings Using DHCP

Note – This procedure assumes that you have already completed the hardware setup and have applied standby power for your server, as described in [Chapter 1](#).

1. **Verify that your DHCP server is configured to accept new media access control (MAC) addresses by checking with your system administrator.**
2. **Connect an Ethernet cable to the server’s RJ-45 NET MGT Ethernet port.** See [FIGURE 1-11](#) or [FIGURE 1-12](#).

If the ILOM SP is *not* using static IP addresses, it broadcasts a DHCPDISCOVER packet with the ID of its MAC address. A DHCP server on your LAN returns a DHCPOFFER packet containing an IP address and other information. The ILOM SP then manages its “lease” of that IP address that was assigned to it by the DHCP server.

3. **Obtain the ILOM SP IP address from one of the following locations. Record the IP address for future reference.**
 - CLI commands. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and enter the CLI command **show /SP/network**, the SP displays the current IP address.
 - The system BIOS setup screen. Press F2 during bootup, then choose Advanced → IPMI 2.0 Configuration → Set LAN Configuration → IP address.
 - DHCP server log files. If you use this method, use [Step a](#) through [Step c](#) below. Otherwise, skip to [Step 4](#).

a. Identify the MAC address of the ILOM SP from one of the following locations and write it down:

- CLI commands. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and type the CLI command **show /SP/network**, the SP displays the current MAC address.
- The Customer Information Sheet that is shipped with your server.
- The system BIOS setup screen. Press F2 during bootup, then choose Advanced → IPMI 2.0 Configuration → Set LAN Configuration → MAC address.

b. Log in to your DHCP server and view its DHCP log file.

Note – Different DHCP server applications running on different operating systems store these log files in different locations. Consult your DHCP system administrator to locate the correct path to the log file.

c. Identify the IP address in the log file that corresponds to the MAC address of your ILOM SP.

Typically, DHCP log file entries are individual lines with the following comma-separated fields:

ID, Date, Time, Description, IP Address, Host Name, MAC Address

Locate the MAC address of your ILOM SP in the MAC Address (seventh) field of the correct DHCP file entry and record the corresponding value of the IP Address (fifth) field. This is the IP address that you must use to access the system management firmware applications on your ILOM SP.

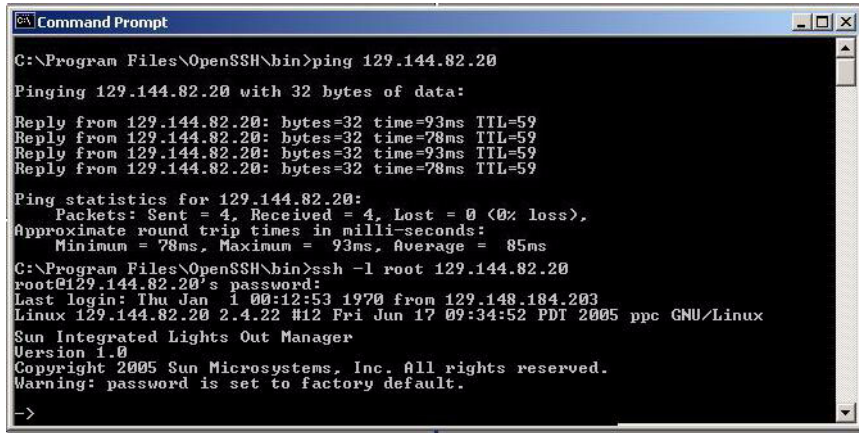
4. Open a session to the ILOM SP using the IP address that you obtained in [Step 3](#).

You can use the CLI or the GUI interface.

- To establish a Secure Shell (SSH) connection to the ILOM SP CLI, type the appropriate connection command in the SSH application. For example, to connect to the SP with the DHCP-assigned IP address of 129.144.82.20, type the following command:

```
# ssh -l root 129.144.82.20
```

The default user name is **root**, which was included in the `ssh` command. When you are prompted, enter the default password for the SP, **changeme**. You can then enter commands to manage user accounts or to monitor the status of devices on your server. See the example in [FIGURE 2-2](#).



```
C:\Program Files\OpenSSH\bin>ping 129.144.82.20
Pinging 129.144.82.20 with 32 bytes of data:
Reply from 129.144.82.20: bytes=32 time=93ms TTL=59
Reply from 129.144.82.20: bytes=32 time=78ms TTL=59
Reply from 129.144.82.20: bytes=32 time=93ms TTL=59
Reply from 129.144.82.20: bytes=32 time=78ms TTL=59
Ping statistics for 129.144.82.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 78ms, Maximum = 93ms, Average = 85ms
C:\Program Files\OpenSSH\bin>ssh -l root 129.144.82.20
root@129.144.82.20's password:
Last login: Thu Jan 1 00:12:53 1970 from 129.148.184.203
Linux 129.144.82.20 2.4.22 #12 Fri Jun 17 09:34:52 PDT 2005 ppc GNU/Linux
Sun Integrated Lights Out Manager
Version 1.0
Copyright 2005 Sun Microsystems, Inc. All rights reserved.
Warning: password is set to factory default.
->
```

FIGURE 2-2 Opening a Session With an SSH Command-Line Interface

- To establish a connection to the ILOM SP web GUI, type the IP address of the ILOM SP in the browser locator box and press Enter.

For example, if the IP address for your ILOM SP was 129.144.02.20, you would enter it as shown in [FIGURE 2-3](#). The first GUI page prompts you for the default username, **root**, and the default password, **changeme**.

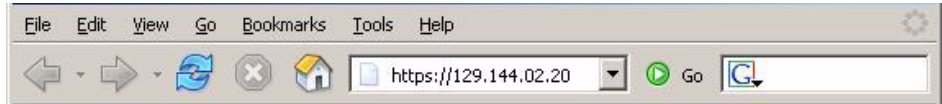


FIGURE 2-3 Opening a Session With a Web GUI

5. After you have entered the user name and password in either the CLI or GUI, you can use the interface to configure your ILOM SP.

For detailed instructions on configuring your system, see the *Integrated Lights-Out Manager Administration Guide*, 819-1160.

6. Continue with “Setting Up Platform Operating System and Driver Software” on [page 29](#).

Configuring ILOM Using Static Ethernet Settings

As an alternative to having your DHCP server assign an IP address to your ILOM SP, you can also assign a static IP address to it. You can do this by using the web GUI, by using the CLI over the network or serial port, or by using the server's BIOS Setup Utility. Use the procedure you prefer.

- [“Configuring Static IP Addresses Using the Web GUI” on page 26](#)
- [“Configuring Static IP Addresses Using the CLI” on page 27](#)
- [“Configuring Static IP Addresses Using the BIOS Setup Utility” on page 28](#)

Configuring Static IP Addresses Using the Web GUI

- 1. Determine the current IP address of the ILOM SP from one of the following locations:**
 - CLI command. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and enter the CLI command **show /SP/network**, the SP displays the current IP address.
 - The system BIOS setup screen. Press F2 during bootup, then choose Advanced → IPMI 2.0 Configuration → Set LAN Configuration → IP address.
- 2. Connect to the ILOM SP through a web browser running on a remote system.**
- 3. Log in to the web GUI using the default user name, *root*, and the default password, *changeme*.**
- 4. Choose the Configuration tab and its Network tab to display information about the current network configuration of your ILOM SP. See [FIGURE 2-4](#).**
- 5. Select the Use the Following IP Address option and type your static IP address information. See the example in [FIGURE 2-4](#).**

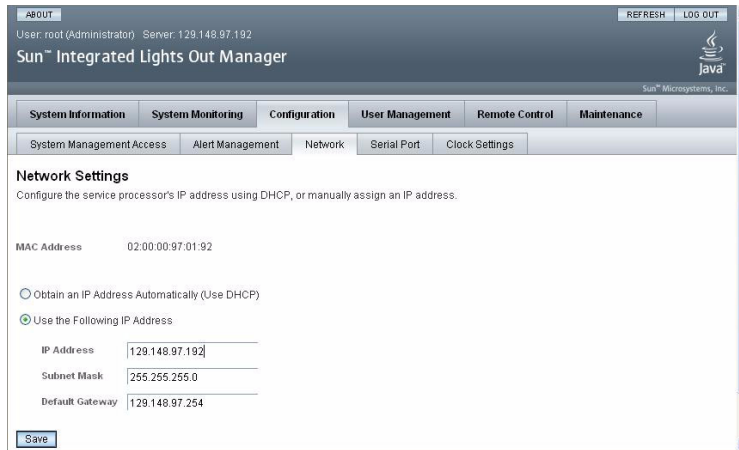


FIGURE 2-4 Integrated Lights Out Manager Network Settings Page

Configuring Static IP Addresses Using the CLI

1. Log into the CLI using SSH or by connecting to the serial port.

To establish a Secure Shell (SSH) connection to the ILOM CLI, type the appropriate connection command in the SSH application. For example, to connect to the SP with the DHCP-assigned IP address of 129.144.82.20, you would type the following command:

```
# ssh -l root 129.144.82.20
```

See the example in [FIGURE 2-2](#).

2. Type the following commands, using your own addresses in place of the examples below:

(The addresses shown in the commands below are examples.)

```
cd /SP/network
set pendingipaddress=129.144.82.26
set pendingipnetmask=255.255.255.0
set pendingipgateway=129.144.82.254
set pendingipdiscovery=static
set commitpending=true
```

Configuring Static IP Addresses Using the BIOS Setup Utility

- 1. Enter the BIOS Setup utility by pressing the F2 key while the system is booting up and performing the power-on self-test (POST).**
- 2. When the BIOS Main menu screen is displayed, select `Advanced`.**
- 3. From the `Advanced` menu screen, select `IPMI 2.0 Configuration`.**
- 4. From the `IPMI 2.0 Configuration` screen, select `LAN Configuration`.**
- 5. On the `LAN Configuration` screen, change the `IP Assignment` field to `Static`.**
- 6. Type the static IP address in the `IP Address` field.**

You can also enter the subnet mask and default gateway settings in their respective fields.
- 7. Select `Commit` and press `Return` to commit the changes.**
- 8. Select `Refresh` and press `Return` to see your new static IP settings displayed in the `Current IP address` in `BMC` field.**
- 9. Press and release the right arrow key until the `Exit` menu screen is displayed.**
- 10. Follow the instructions on the `Exit` menu screen to save your changes and exit the `Setup` utility.**

Setting Up Platform Operating System and Driver Software

After configuring the ILOM SP with network settings, you can configure the preinstalled Solaris 10 operating system, or install a supported Linux or Windows platform operating system and drivers.

- If you want to use the preinstalled Solaris 10 operating system, refer to [“Configuring the Preinstalled Solaris 10 Operating System”](#) on page 36.
- For details about installing a supported Linux or Solaris OS and the required drivers, refer to *Sun Fire X4100/X4200 Servers Operating System Installation Guide*, 819-1158.
- For details about installing a supported Windows OS and the required drivers, refer to *Sun Fire X4100/X4200 Servers Windows Operating System Installation Guide*, 819-4346.
- For additional OS considerations specific to this server, refer to one of the following:
 - *Sun Fire X4100/X4200 Servers Product Notes*, 819-1162
 - *Sun Fire X4100 M2/X4200 M2 Servers Product Notes*, 819-5038

Configuring the Preinstalled Solaris 10 Operating System

This chapter explains the steps for configuring the Solaris™ 10 Operating System (OS) that has been preinstalled on your server. The factory-installed version is Solaris 10 6/06 or later.

Before You Begin

Before you begin configuring the preinstalled OS, you need to do the following:

1. Perform initial configuration of the server's Integrated Lights Out Manager (ILOM) Service Processor (SP) and determine the server's network settings, as described in ["Connecting to the ILOM Service Processor" on page 21](#).
2. Gather the information that you will need for the configuration, as listed in ["Installation Worksheet" on page 32](#).
3. Select your console output. For details, see ["Selecting Your Console Output" on page 35](#).

Installation Worksheet

Use the worksheet in [TABLE 1](#) to gather the information you need to configure the preinstalled Solaris 10 OS. You need to collect only the information that applies to your application.

TABLE 1 Worksheet for Installation

Information for Installation		Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Language		Choose from the list of available languages for the Solaris 10 software.	English*
Locale		Choose your geographic region from the list of available locales.	English (C - 7-bit ASCII)*
Terminal		Choose the type of terminal that you are using from the list of available terminal types.	
Network connection		Is the system connected to a network?	<ul style="list-style-type: none"> • Networked • Non-networked*
DHCP		Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces?	<ul style="list-style-type: none"> • Yes • No*
If you are not using DHCP, note the network address:	IP address	If you are not using DHCP, supply the IP address for the system. Example: 129 . 200 . 9 . 1	
	Subnet	If you are not using DHCP, is the system part of a subnet? If yes, what is the netmask of the subnet? Example: 255 . 255 . 0 . 0	255.255.0.0*
	IPv6	Do you want to enable IPv6 on this machine?	<ul style="list-style-type: none"> • Yes • No*
Host name		A host name that you choose for the system.	
Kerberos		Do you want to configure Kerberos security on this machine? If yes, gather the following information: <div style="text-align: right; margin-right: 20px;"> Default Realm: Administration Server: First KDC: (Optional) Additional KDCs: </div>	<ul style="list-style-type: none"> • Yes • No*

TABLE 1 Worksheet for Installation (*Continued*)

Information for Installation		Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Name service: if the system uses a name service, provide the following information.	Name service	Which name service should this system use?	<ul style="list-style-type: none"> • NIS+ • NIS • DNS • LDAP • None*
	Domain name	Provide the name of the domain in which the system resides.	
	NIS+ and NIS	Do you want to specify a name server or let the installation program find one?	<ul style="list-style-type: none"> • Specify One • Find One*
	DNS	Provide IP addresses for the DNS server. You must enter at least one IP address, but you can enter up to three addresses. You can also enter a list of domains to search when a DNS query is made. <div style="text-align: right;"> Search Domain: Search Domain: Search Domain: </div>	
	LDAP	Provide the following information about your LDAP profile: <div style="text-align: right;"> Profile name: Profile server: </div> If you specify a proxy credential level in your LDAP profile, gather this information: <div style="text-align: right;"> Proxy-Bind Distinguished Name: Proxy-Bind Password: </div>	

TABLE 1 Worksheet for Installation (*Continued*)

Information for Installation	Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Default route	<p>Do you want to specify a default route IP address or let the Solaris installation program find one?</p> <p>The default route provides a bridge that forwards traffic between two physical networks. An IP address is a unique number that identifies each host on a network. You have the following choices:</p> <ul style="list-style-type: none"> • You can specify the IP address. An <code>/etc/defaultrouter</code> file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route. • You can let the Solaris installation program detect an IP address. However, the system must be on a subnet that has a router that advertises itself by using the ICMP router discovery protocol. If you are using the command-line interface, the software detects an IP address when the system is booted. • You can choose None if you do not have a router or do not want the software to detect an IP address at this time. The software automatically tries to detect an IP address on reboot. 	<ul style="list-style-type: none"> • Specify One • Detect One • None*
Time zone	How do you want to specify your default time zone?	<ul style="list-style-type: none"> • Geographic region* • Offset from GM • Time zone file
Root password	Choose a root password for the system.	

Selecting Your Console Output

Unlike with SPARC® systems, you will *not* see the output of the preinstalled Solaris 10 image through a monitor when you power on the server. Instead, the output of the preinstalled image is directed to a *serial console*.

GRUB, the open source boot loader, is the default boot loader. The boot loader is the first software program that runs after you power on a system.

From the GRUB menu, you have the option of displaying the installation process to a VGA connection (video port) as shown here:

```
*****
* Solaris 10 11/06 s10x_u2wos_09a X86                                     *
* Solaris failsafe                                                    *
* Solaris 10 11/06 s10x_u2wos_09a X86 (VGA)                           *
*                                                                       *
*                                                                       *
*                                                                       *
*                                                                       *
*                                                                       *
*                                                                       *
*****
```

Note – The first line of the above figure shows the default startup mode.

Example

To display output to the video port, choose the Solaris 10 11/06 s10x_u2wos_09a X86 (VGA) option.

Configuring the Preinstalled Solaris 10 Operating System

Note – Before you perform this procedure, you need to set up the service processor. If you have not done so, see [“Before You Begin” on page 31](#).

Use the information that you gathered in [“Installation Worksheet” on page 32](#) as you perform the configuration.

After configuring the ILOM SP, you can configure the preinstalled Solaris 10 operating system (OS) by using another system to connect to the server, or install a Linux or Windows platform operating system. The possible ways to do this are described here:

- [“To Connect to the Server Using the Service Processor’s IP Address” on page 37](#)
If you use this method, you first need to determine the service processor’s IP address and the server must be connected to the network.
- [“To Connect to the Server Using a Terminal Program” on page 38](#)
If you use this method, you do *not* need to determine the service processor’s IP address, but you will need to have a cable connection from the server to the serial port of a host system.
- If you want to install a supported Windows or Linux OS and the required drivers, refer to the following:
 - For Windows: *Sun Fire X4100/X4100 M2 and X4200/X4200 M2 Servers Windows Operating System Installation Guide*, 819-4346
 - For Linux (and Solaris): *Sun Fire X4100/X4100 M2 and X4200/X4200 M2 Servers Operating System Installation Guide*, 819-1158
- For additional OS considerations specific to this server, refer to either of the following:
 - *Sun Fire X4100/X4200 Servers Product Notes*, 819-1162
 - *Sun Fire X4100 M2/X4200 M2 Servers Product Notes*, 819-5038

▼ To Connect to the Server Using the Service Processor's IP Address

Note – This procedure assumes that you have connected the server to your network through an Ethernet cable.

1. If you have not already done so, determine the service processor's IP address:

- a. Power on main power to the platform by using a stylus to press the recessed Power button on the front panel.**

POST messages appear on your screen as the OS boots up.

- b. Initialize the BIOS Setup utility by pressing the F2 key while the system is performing the power-on self-test (POST).**

- c. When the main BIOS screen is displayed, select Advanced.**

- d. When the Advanced screen is displayed, select IPMI 2.0 Configuration.**

When the IPMI 2.0 Configuration screen is displayed, select the LAN Configuration menu item.

- e. Select the IP Address menu item.**

The service processor's IP address is displayed using the following format:
Current IP address in BMC: xxx.xxx.xxx.xxx

2. Using a client system, establish a Secure Shell (SSH) connection to the service processor's IP address.

```
ssh -l root sp_ip_address
```

3. Log in to the service processor as an Administrator, for example:

```
login: root  
password: changeme
```

4. Start the ILOM console mode by entering the following:

```
start /SP/console
```

You can configure the SP serial port to display the installation process to a VGA connection (video port). See [“Selecting Your Console Output” on page 35](#).

5. If you have changed the SP Serial Port default settings, make sure you reset them to the default settings.

6. Follow the Solaris 10 on-screen prompts.

Use the information gathered in [“Installation Worksheet” on page 32](#) to help you enter the system and network information as you are prompted.

The screens that are displayed will vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

After you have entered the system-configuration information, the server completes the boot process and displays the Solaris login prompt.

▼ To Connect to the Server Using a Terminal Program

1. **Use a cable to connect the serial port of the server to the serial port of the host system.**

2. **Make sure the communication properties of the serial port of the system are set to the default.**

The default settings are 9600 baud, 8N1 (eight data bits, no parity, one stop bit), disable flow control.

3. **Start a terminal session to capture the serial port output:**

On a client running Solaris OS, type:

```
$tip -9600 /dev/ttya
```

On a client running Windows, start a program such as Hyperterminal.

On a client running Linux, start a program such as Minicom, a text-based serial communication program that is included in the Linux distributions. For more information, see the man pages included in the Linux distribution.

4. **Log in to the service processor as an Administrator, for example:**

login: **root**

password: **changeme**

5. **Start the ILOM SP GUI by entering the following:**

```
start /SP/console
```

6. **Power on main power to the server by using a nonmetallic stylus to press the recessed Power button on the front panel.**

POST messages appear on your screen as the OS boots up.

7. **Follow the Solaris 10 preinstallation on-screen prompts.**

Use the information gathered in [“Installation Worksheet” on page 32](#) to help you enter the system and network information as you are prompted.

The screens that are displayed will vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

After you have entered the system-configuration information, the server completes the boot process and displays the Solaris login prompt.

Solaris 10 User Documentation

You can access the various collections of the Solaris 10 OS user documentation at:

<http://docs.sun.com/app/docs/prod/solaris.10>

Specifically, you can access the Solaris 10 OS Release and Installation Collection at:

<http://docs.sun.com/app/docs/coll/1236.1>

Downloading Solaris 10 OS Software

If you need to re-install the Solaris 10 OS after removing it, you can download the CD or DVD image.

- To download the CD image, see:

<http://javashopl.m.sun.com/ECom/docs/Welcome.jsp?StoreId=8&PartDetailId=Sol10-hw1-x86-G-F&TransactionId=try>

- To download the DVD image, see:

<http://javashopl.m.sun.com/ECom/docs/Welcome.jsp?StoreId=8&PartDetailId=Sol10-hw1-x86-DVD-G-F&TransactionId=try>

Solaris 10 OS Training

Sun provides flexible training options that accommodate your personal schedule and learning style. The training options include instructor-led, web-based online, CD-ROM and Live Virtual Class. For Solaris 10 Training and Certification options at a glance, please visit:

<http://www.sun.com/training/catalog/solaris10.html>

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